

**CAMECO RESOURCES
CROW BUTTE OPERATION**



**86 Crow Butte Road
P.O. Box 169
Crawford, Nebraska 69339-0169**

**(308) 665-2215
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July 26, 2022

Electronic Submittal

DOCUMENT CONTROL DESK, DIRECTOR
U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

The enclosed report was provided to NDEE.

Class III UIC Permit NE0122611
June 2022 Monthly Restoration Report

Please find enclosed the Crow Butte Monthly Restoration Reports for Mine Units 2, 3, 4, 5, 6, 7 and 8. The reverse osmosis (RO) units continue to inject permeate and reductant into Mine Units 6, 7, and 8. Mine Units 2, 3, 4 and 5 remained in stability monitoring.

If you have any questions regarding this submittal, please feel free to contact me at (308) 665-2215, ext. 121.

Sincerely,
Cameco Resources
Crow Butte Operation



Tate Hagman
Restoration Manager

Enclosures: As Stated

cc: Ron Burrows; Document Control Desk; Deputy Director, Division of Decommissioning – NRC
CBO - File
ec: CR – Electronic File
Kory Winters – NDEE Field Office
Amanda Osborn – NDEE Program Coordinator

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
June 2022
Mine Unit 2

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment		X	
d. Wellfield Recirculation		X	
e. Other (explain):	X		The Mine Unit is in Stability Monitoring

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING THE MONTH: (Assay results attached)

No in-house samples were collected during the month.

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
 June 2022
 Mine Unit 3

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment		X	
d. Wellfield Recirculation		X	
e. Other (explain):	X		The Mine Unit is in Stability Monitoring

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING THE MONTH: (Assay results attached)

No in-house samples were collected during the month.

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
June 2022
Mine Unit 4

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment		X	
d. Wellfield Recirculatoin		X	
e. Other (explain):	X		The Mine Unit is in Stability Monitoring

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING THE MONTH: (Assay results attached)

No in-house samples were collected during the month.

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
 June 2022
 Mine Unit 5

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment		X	P1002
d. Wellfield Recirculatoin		X	
e. Other (explain):	X		The Mine Unit is in Stability Monitoring

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING THE MONTH: (Assay results attached)

No in-house samples were collected during the month.

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
 June 2022
 Mine Unit 6

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment	X		I1274P P1399 P1461 P1532 P1628 P1663 P1742
d. Wellfield Recirculatoion		X	
e. Other (explain):		X	

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING THE MONTH: (Assay results attached)

I1274P
 P1399
 P1461
 P1532
 P1628
 P1663
 P1742

Mine Unit 6 Restoration Data

Well ID	Date	Alk	Ca	Cl	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
I1274P													
	6/7/2022	422	11.96	150	3.33	409	319	1939	7.86	1202	0.03	1.27	0.46
P1399													
	6/7/2022	479	26.46	191	6.40	472	396	2317	7.96	1437	0.03	1.30	0.23
P1461													
	6/7/2022	361	15.68	170	4.25	401	353	1975	8.13	1225	0.02	0.99	0.42
P1532													
	6/7/2022	380	14.38	173	3.90	425	364	2041	7.71	1265	0.02	0.24	0.13
P1628													
	6/7/2022	308	8.85	129	2.81	319	243	1551	8.28	962	0.01	0.63	0.49
P1663													
	6/7/2022	404	15.81	189	5.22	431	348	2090	8.07	1296	0.02	0.71	0.40
P1742													
	6/7/2022	267	3.98	73	1.24	224	135	1044	8.66	647	0.02	0.75	2.36

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
 June 2022
 Mine Unit 7

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment	X		IX and RO <div style="margin-left: 20px;"> BL-17 P2038 CM4-14 P2040 CM4-15 P2316 CM4-16 P2384 CM4-17 P2476 I1971P P2505 I1973P P2523 I1975P P5230 I2183P P5271 I2185P P5283 </div>
d. Wellfield Recirculatoin		X	
e. Other (explain):		X	

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING THE MONTH: (Assay results attached)

BL-17	I1978P	P2125	P2476	P5230
CM3-7	I1982P	P2188	P2481	P5250
CM4-12	I1985P	P2216	P2505	P5258
CM4-13	I2183P	P2219	P2510	P5271
CM4-14	I2185P	P2226	P2523	P5278
CM4-15	I2244P	P2264	P2538	P5283
CM4-15	I2429P	P2303	P2540	
CM4-16	I2502P	P2316	P2541	
CM4-16	P1957	P2331	P2601	
CM4-17	P1972	P2340	P2610	
CM4-18	P1986	P2359	P2612	
I1971P	P2014	P2384	P2614	
I1973P	P2038	P2401	P2615	
I1975P	P2040	P2468	P2624	
I1977P	P2108	P2470	P2660	

Mine Unit 7		Restoration Data											
Well ID	Date	Alk	Ca	Cl	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
BL-17													
	6/7/2022	376	7.31	56	1.72	242	115	1112	8.2	689	0.02	0.36	1.64
CM3-7													
	6/21/2022	361	17.37	100	3.46	313	223	1463	8.16	907	0.03	0.18	0.29
CM4-12													
	6/21/2022	229	9.29	40	0.98	161	83	745	7.57	462	0.33	0.07	0.03
CM4-13													
	6/21/2022	343	14.22	51	2.57	227	111	1046	7.73	649	0.03	0.58	0.19
CM4-14													
	6/7/2022	771	49.46	191	14.03	638	557	3031	7.38	1879	0.01	2.19	0.46
CM4-15													
	6/21/2022	744	53.05	192	15.07	638	554	2990	7.7	1854	0.01	0.96	0.47
	6/7/2022	740	51.90	187	15.10	620	549	2984	7.45	1850	0.01	0.97	0.57
CM4-16													
	6/7/2022	668	44.35	165	12.53	541	467	2630	7.42	1631	0.02	0.75	0.41
	6/21/2022	654	40.11	157	11.97	538	432	2546	7.34	1579	0.02	0.76	0.29
CM4-17													
	6/7/2022	570	35.23	141	10.48	448	360	2181	7.59	1352	0.04	0.45	0.16
CM4-18													
	6/21/2022	245	9.15	31	1.41	147	50	677	7.93	420	0.03	0.31	0.92
I1971P													
	6/7/2022	653	36.60	137	9.79	510	414	2411	7.47	1495	0.01	1.06	0.35
I1973P													
	6/7/2022	672	31.30	124	7.75	504	371	2355	7.54	1460	0.02	3.39	0.66
I1975P													
	6/7/2022	849	61.00	219	18.39	698	630	3361	7.34	2084	0.01	4.17	0.32
I1977P													
	6/21/2022	251	21.80	35	2.18	151	78	760	7.64	471	0.04	0.17	0.18
I1978P													
	6/21/2022	319	21.62	45	3.30	206	129	993	7.71	616	0.05	0.65	0.24
I1982P													
	6/21/2022	238	16.06	40	2.85	138	58	707	7.79	438	0.04	0.21	0.16
I1985P													
	6/21/2022	196	27.77	33	2.05	97	39	550	7.72	341	0.06	0.01	0.08
I2183P													
	6/7/2022	505	34.97	114	8.01	383	310	1927	7.47	1195	0.01	4.71	0.92

Mine Unit 7		Restoration Data											
Well ID	Date	Alk	Ca	Cl	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
I2185P	6/7/2022	815	43.73	170	13.65	650	560	3072	7.53	1905	0.02	2.42	2.04
I2244P	6/21/2022	287	19.47	139	4.15	327	292	1606	7.54	996	0.03	0.55	0.18
I2429P	6/21/2022	658	44.54	220	12.28	637	558	2952	7.61	1830	0.03	5.25	0.28
I2502P	6/21/2022	307	21.31	182	5.02	398	358	1924	8.2	1193	0.02	0.12	0.04
P1957	6/21/2022	146	11.38	29	0.38	102	50	495	6.99	307	0.08	0.00	0.05
P1972	6/21/2022	274	7.81	41	1.60	194	106	879	7.82	545	0.06	0.73	0.44
P1986	6/21/2022	289	5.14	36	0.93	182	69	804	8.44	498	0.02	0.53	0.91
P2014	6/21/2022	131	9.22	27	0.79	91	42	437	7.12	271	0.21	0.04	0.05
P2038	6/7/2022	584	40.20	145	11.65	493	436	2375	7.42	1473	0.02	1.93	0.27
P2040	6/7/2022	775	61.65	217	20.43	665	637	3252	7.34	2016	0.01	2.33	0.25
P2108	6/21/2022	210	8.53	29	0.49	134	52	602	7.54	373	0.24	0.06	0.14
P2125	6/21/2022	361	12.88	75	2.57	296	219	1376	7.39	853	0.09	0.52	0.06
P2188	6/21/2022	269	8.09	58	1.90	210	109	964	7.64	598	0.02	0.70	28.03
P2216	6/21/2022	390	17.69	147	4.01	397	318	1853	8.16	1149	0.02	2.12	0.54
P2219	6/21/2022	463	53.93	147	10.64	433	430	2172	7.19	1347	0.04	0.53	0.07
P2226	6/21/2022	332	9.12	45	1.50	219	105	1002	7.85	621	0.05	0.89	0.32
P2264	6/21/2022	220	21.62	58	2.16	164	108	846	7.57	525	0.02	0.11	2.26
P2303	6/21/2022	138	10.66	27	0.82	92	36	434	7.12	269	0.86	0.00	0.05
P2316	6/7/2022	551	45.80	125	11.42	415	361	2104	7.42	1304	0.01	2.48	0.57

Mine Unit 7 Restoration Data

Well ID	Date	Alk	Ca	Cl	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
P2331	6/21/2022	128	11.26	27	0.66	87	36	425	7.19	264	0.13	0.00	0.03
P2340	6/21/2022	173	10.23	27	1.13	105	36	502	7.26	311	0.17	-0.01	0.04
P2359	6/21/2022	747	76.77	210	21.35	670	650	3233	7.15	2004	0.06	11.21	0.19
P2384	6/7/2022	683	56.35	193	16.57	597	580	2961	7.3	1836	0.02	3.50	0.59
P2401	6/21/2022	175	13.22	23	1.65	105	54	523	7.88	324	0.02	0.09	0.11
P2468	6/21/2022	275	6.94	58	0.88	203	107	954	8.12	591	0.03	0.26	0.98
P2470	6/21/2022	248	6.90	37	0.96	167	80	762	8.06	472	0.02	0.24	0.45
P2476	6/7/2022	336	15.12	86	3.62	269	190	1306	7.68	810	0.04	0.69	0.71
P2481	6/21/2022	351	5.82	43	1.10	227	95	994	8.31	616	0.02	0.49	2.61
P2505	6/7/2022	311	19.73	146	3.83	342	297	1709	7.74	1060	0.01	0.28	0.65
P2510	6/21/2022	361	27.67	185	5.54	420	381	2054	8.06	1273	0.02	0.83	0.51
P2523	6/7/2022	237	5.88	37	1.34	159	72	717	7.8	445	0.01	0.19	0.77
P2538	6/21/2022	149	12.17	36	1.03	106	47	522	7.38	324	0.05	0.16	10.01
P2540	6/21/2022	248	26.73	37	2.36	135	55	717	8.02	445	0.03	0.60	0.13
P2541	6/21/2022	142	20.51	33	1.17	83	37	456	7.51	283	0.12	0.04	0.10
P2601	6/21/2022	389	23.37	97	5.29	316	226	1501	7.79	931	0.13	0.38	1.04
P2610	6/21/2022	492	14.02	60	3.30	313	139	1395	8.04	865	0.02	1.35	1.06
P2612	6/21/2022	208	5.99	37	0.85	155	77	680	7.38	422	0.05	0.07	0.53
P2614	6/21/2022	432	24.39	65	5.29	279	149	1322	7.94	820	0.03	0.46	0.11

Mine Unit 7 Restoration Data

Well ID	Date	Alk	Ca	Cl	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
P2615													
	6/21/2022	252	8.18	31	0.70	156	55	699	8.27	433	0.05	0.31	2.14
P2624													
	6/21/2022	127	4.96	27	0.34	87	27	394	7.55	244	0.03	-0.01	0.38
P2660													
	6/21/2022	526	21.21	75	3.88	357	195	1620	8.27	1004	0.02	1.58	0.36
P5230													
	6/7/2022	749	47.38	182	12.76	625	544	2946	7.5	1827	0.02	2.79	0.62
P5250													
	6/21/2022	372	15.19	65	3.42	268	158	1242	7.78	770	0.02	0.76	1.20
P5258													
	6/21/2022	121	10.06	31	0.46	84	32	412	7.08	255	0.40	-0.01	0.05
P5271													
	6/7/2022	662	34.66	147	9.42	495	371	2418	7.53	1499	0.02	1.22	0.66
P5278													
	6/21/2022	319	7.90	34	0.99	202	83	889	8.03	551	0.04	0.65	0.76
P5283													
	6/7/2022	588	34.78	130	9.90	452	362	2203	7.71	1366	0.02	1.29	1.44

CROW BUTTE MINE
MONTHLY RESTORATION REPORT
June 2022
Mine Unit 8

1. RESTORATION ACTIVITY DURING MONTH:

	YES	NO	
a. Groundwater Transfer		X	(if yes, complete part 2)
b. Groundwater Sweep		X	(if yes, complete part 3)
c. Groundwater Treatment	X		IX and RO <div style="display: flex; justify-content: space-between; margin-top: 5px;"> CM6-11 P2764 P6104 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> CM6-21 P2770 P6110 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> CM6-24 P2855 P6127 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> I2671P P2904 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> I2685P P2908 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> I2688P P3178 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> P2689 P3189 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> P2700 P3192 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> P2724 P3209 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> P2734 P6103 </div>
d. Wellfield Recirculatoion		X	
e. Other (explain):		X	

2. LIST WELLS USED IN GROUNDWATER TRANSFER DURING THE MONTH:

3. LIST WELLS USED IN GROUNDWATER SWEEP DURING THE MONTH:

4. LIST WELLS SAMPLED DURING THE MONTH: (Assay results attached)

CM6-11 P3209
 CM6-21 P3441
 CM6-24 P6104
 I2671P
 I2685P
 P2689
 P2700
 P2724
 P2734
 P2770
 P2855
 P2904
 P2908
 P3178
 P3192

Mine Unit 8 Restoration Data

Well ID	Date	Alk	Ca	Cl	Mg	Na	SO4	Cond	pH	TDS	Fe	U	V
CM6-11	6/7/2022	343	17.32	145	4.32	372	320	1767	8.14	1096	0.02	0.28	0.13
CM6-21	6/7/2022	412	12.69	132	3.31	370	265	1731	8.16	1073	0.02	5.45	0.32
CM6-24	6/7/2022	373	8.37	109	2.92	332	223	1510	8.45	936	0.02	0.92	1.03
I2671P	6/7/2022	571	14.32	158	4.47	487	327	2208	8.19	1369	0.02	2.67	0.98
I2685P	6/7/2022	363	6.40	101	1.99	316	209	1431	8.51	887	0.02	2.72	1.16
P2689	6/7/2022	318	6.20	97	1.80	292	208	1354	8.07	839	0.03	1.28	0.18
P2700	6/7/2022	446	21.99	198	6.14	464	375	2208	8.02	1369	0.02	0.49	0.35
P2724	6/7/2022	528	12.30	177	4.88	489	347	2243	8.12	1391	0.01	3.11	1.90
P2734	6/7/2022	337	4.10	93	1.44	295	182	1327	8.28	823	0.02	2.34	1.47
P2770	6/7/2022	322	5.80	86	1.99	269	169	1231	8.75	763	0.02	0.66	2.47
P2855	6/7/2022	407	17.59	154	5.30	398	307	1879	8.1	1165	0.01	2.13	0.71
P2904	6/7/2022	465	26.43	191	7.45	460	371	2208	7.94	1369	0.02	1.28	0.68
P2908	6/7/2022	340	7.00	101	2.18	309	210	1388	8.34	861	0.02	4.20	0.75
P3178	6/7/2022	342	10.85	108	3.41	308	226	1453	8.17	901	0.02	1.61	0.66
P3192	6/7/2022	362	21.72	130	4.94	346	270	1668	7.92	1034	0.02	0.55	0.20
P3209	6/7/2022	336	8.31	106	2.32	311	218	1441	8.17	893	0.03	3.03	0.38
P3441	6/7/2022	880	52.38	0	15.74	928	778	4281	7.69	2654	0.01	7.36	0.39
P6104	6/7/2022	339	9.81	106	3.06	304	216	1416	8.42	878	0.02	0.51	0.75